

Claims

1. A method of providing access from a first marine structure to a second marine structure comprising:
 - 5 providing a gangway apparatus in a stored condition on the first marine structure;
 - positioning the first marine structure proximate the second marine structure;
 - providing at least one guide wire attached to the first marine structure, the gangway apparatus being attached or attachable to a said guide wire by means
 - 10 of one or more slidable fixings;
 - extending the at least one guide wire from the first marine structure and connecting the at least one guide wire between a location on the first marine structure and an attachment location on the second marine structure proximate the location of entry to the second marine structure;
 - 15 controlling and, where necessary, adjusting the position of the first marine structure so that it is maintained in spaced apart relation to the second marine structure, and maintaining the at least one guide wire at a desired tension;
 - moving the gangway apparatus from the stored condition to a use condition by sliding the slidable fixing(s) along a said guide wire until the gangway apparatus
 - 20 spans the gap between the first marine structure and location of entry to the second marine structure.
 2. A method as claimed in claim 1 wherein the gangway apparatus comprises at least one inflatable member attached to a said guide wire by said slidable fixings
 - 25 and transformable by inflation thereof from a compact state to an extended state, the method further comprising inflating the inflatable member with an inflating fluid thereby to cause the slidable fixings to slide along the guide wire as the inflatable member expands until the gangway apparatus spans the gap between the first marine structure and location of entry to the second marine
 - 30 structure.
3. A method as claimed in claim 2 comprising:

providing two guide wires and connecting said guide wires between a location on the first marine structure and points on the second marine structure proximate the location of entry to the second marine structure.

5 4. A method as claimed in claim 3 comprising providing a single inflatable member with a guide wire at respective sides thereof.

5. A method as claimed in any preceding claim wherein the first marine structure is a transfer vessel and the second marine structure is a fixed structure.

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6. A method as claimed in any of claims 1 to 4 wherein the first and second marine structures are first and second vessels.

15 7. Apparatus for providing a bridge structure for the transfer of personnel, goods or equipment from a first marine structure to a second marine structure comprising:

at least one inflatable member which is transformable from a compact state to an extended state by inflation thereof;

attachment means for attaching the apparatus to the first marine structure;

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means for inflating the inflatable member;

at least one guide wire and means for attaching the guide wire to the first marine structure, the guide wire being extendable from the first marine structure and attachable to an attachment location on the second marine structure proximate the location of entry to the second marine structure;

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means mounted in use on the first marine structure for maintaining a desired tension in the at least one guide wire;

a plurality of slidable fixings slidable along a said guide wire on inflation of the at least one inflatable member, by means of which fixings the at least one inflatable member is operatively suspendable from the at least one guide wire.

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8. Apparatus as claimed in claim 7 comprising a single inflatable member.

9. Apparatus as claimed in claim 7 comprising a plurality of inflatable members which are independently inflatable.
- 5 10. Apparatus as claimed in claim 9 comprising at least one inflatable member which, in its expanded state, has an upper surface which operatively forms a walkway for personnel using the bridge structure.
- 10 11. Apparatus as claimed in claim 10 comprising means for joining two or more inflatable members together to form said walkway.
12. Apparatus as claimed in claim 11 wherein said two or more inflatable members are joined in side-by-side relation.
- 15 13. Apparatus as claimed in claim 9, 10, 11 or 12 further comprising inflatable members defining in their expanded state side walls of the bridge structure.
14. Apparatus as claimed in claim 13 comprising means for joining two or more inflatable members together to form said side walls.
- 20 15. Apparatus as claimed in claim 14 wherein said two or more inflatable members are joined in side-by-side relation.
- 25 16. Apparatus as claimed in claim 8 wherein an upper surface said inflatable member operatively forms a walkway for personnel using the bridge structure.
17. Apparatus as claimed in claim 16 wherein said upper surface includes a non-slip surface.
- 30 18. Apparatus as claimed in claim 8 or 16 or 17 further comprising a plurality of upright posts attached at intervals to said inflatable member and safety ropes or nets attached to said posts.

19. Apparatus as claimed in any of claims 7 to 18 further comprising at least one safety rope extending lengthwise of the bridge to which a user's safety harness is operatively attachable.
- 5 20. Apparatus as claimed in any of claims 7 to 19 wherein the at least one inflatable member is, in its expanded state, operatively suspended below a single guide wire.
- 10 21. Apparatus as claimed in any of claims 7 to 19 wherein the at least one inflatable member is, in its expanded state, operatively suspended between a pair of substantially parallel guide wires.
- 15 22. Apparatus as claimed in any of claims 7 to 21 wherein the first marine structure is a transfer vessel and the second marine structure is a fixed structure.
23. Apparatus as claimed in any of claims 7 to 21 wherein the first and second marine structures are first and second vessels.
- 20 24. Apparatus as claimed in any of claims 7 to 23 for carrying out the method of any of claims 2 to 6.
- 25 25. A transfer vessel having mounted thereon apparatus as claimed in any of claims 7 to 21.
26. A transfer vessel as claimed in claim 25 comprising an inflatable boat, in particular an RIB.
27. Mounting structure for mounting an apparatus as claimed in any of claims 7 to 23 on a vessel, comprising at least one of:
- 30 i) means for accommodating rotational movement of the vessel with respect to the apparatus;
- ii) means for accommodating translational movement of the vessel with respect to the apparatus; and

- iii) means for accommodating pitching movement of the vessel with respect to the apparatus.

28. Mounting structure for mounting an apparatus as claimed in any of claims 7 to 5 23 on a vessel comprising:
a first mounting component mounted in rotationally fixed relation to the vessel
a second mounting component mounted on the first mounting component and attached in rotationally fixed relation to the apparatus, the first and second mounting components being rotatable with respect to one another.
- 10 29. A mounting structure as claimed in claim 28 wherein the first and second components define a slew ring bearing.
- 15 30. A mounting structure as claimed in claim 28 or 29 further comprising a first frame element disposed between the second component and the apparatus and mounted with translational freedom of movement with respect to the second mounting component.
- 20 31. A mounting structure as claimed in claim 30 further comprising biasing means adapted to bias the first frame element towards a desired location in its translational motion.
- 25 32. A mounting structure as claimed in any of claims 28 to 31 further comprising a second frame element pivotally mounted with respect to the second mounting component operatively attached to the apparatus, wherein the second frame element operatively pivots about a nominally horizontal axis substantially perpendicular to the longitudinal axis of the at least one inflatable member when extended.
- 30 33. A mounting structure as claimed in claim 32 wherein the second frame element is pivotally mounted on the first frame element.

34. A transfer system comprising a mounting structure as claimed in any of claims 28 to 33 and an apparatus as claimed in any of claims 7 to 23 attached thereto.
- 5 35. A transfer vessel having mounted thereon a mounting structure as claimed in any of claims 28 to 33.
36. A transfer vessel having mounted thereon a transfer system as claimed in claim 34.
- 10 37. A transfer vessel as claimed in claim 36 comprising an inflatable boat, in particular an RIB.
38. Apparatus substantially as hereinbefore described with reference to any of Figures 1 to 10.
- 15 39. Mounting structure substantially as hereinbefore described with reference to any of Figures 5 to 10.
40. A method substantially as hereinbefore described with reference to any of Figures 1 to 20.
- 20 41. A transfer vessel having mounted thereon apparatus as claimed in claim 38.
42. A transfer vessel having mounted thereon a mounting structure as claimed in claim 39.
- 25 43. A transfer system comprising a mounting structure as claimed in claim 39 and an apparatus as claimed in claim 38 attached thereto.
- 30 44. A transfer vessel having mounted thereon a transfer system as claimed in claim 43.
45. A method as claimed in claim 1 further comprising:

providing the first marine structure with a runway and mounting the gangway apparatus on the runway in its stored condition and, when the gangway apparatus is required for use, sliding the gangway apparatus along the runway.

5 46. A method as claimed in claim 45 wherein the gangway apparatus slides along the runway contemporaneously with the step of sliding the gangway apparatus along the guide wire(s).

10 47. A method as claimed in claim 45 or 46 wherein at least one end portion of the gangway apparatus remains connected to the runway when the gangway apparatus is in its use condition.

15 48. A method as claimed in any of claims 45 to 47 wherein the first marine structure is a transfer vessel and the second marine structure is a fixed structure.

15 49. A method as claimed in any of claims 45 to 47 wherein the first and second marine structures are vessels.

20 50. Apparatus for providing a bridge structure for the transfer of personnel from a first marine structure to a second marine structure, the apparatus comprising:
a bridge member operatively moveable from a stored condition to a use condition;
a runway operatively mounted on the first marine structure and on which the bridge member is mounted in its stored condition;
25 at least one guide wire and means for attaching the guide wire to the first marine structure, the guide wire being extendable from the first marine structure and attachable to an attachment location on the second marine structure proximate the location of entry to the second marine structure;
means mounted in use on the first marine structure for maintaining a desired
30 tension in the at least one guide wire;
one or more first slidable fixings attached to said bridge member by means of which the bridge member is slidable along the runway from the stored condition to, or towards, the use condition;

one or more second slidable fixings attached to the bridge member and slidable along a said guide wire on deployment of the bridge member, by means of which fixings the bridge member is operatively suspendable from the at least one guide wire to span the gap between the first and second marine structures.

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51. Apparatus as claimed in claim 50 wherein the runway comprises at least one rigid rail.

52. Apparatus as claimed in claim 51 wherein the or each rail is rectilinear.

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53. Apparatus as claimed in claim 50 wherein the runway comprises one or more tensioned cables.

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54. Apparatus as claimed in any of claims 50 to 53 wherein the first marine structure is a transfer vessel and the second marine structure is a fixed structure.

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55. Apparatus as claimed in claim 54 wherein the runway is mounted in use to extend from a highest point towards a central region of the vessel to a lowest point near the stern of the vessel.

56. Apparatus as claimed in any of claims 50 to 53 wherein the first and second marine structures are vessels.

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57. Apparatus as claimed in any of claims 50 to 56 wherein at least an end portion of the bridge member remains attached to the runway in the use condition.

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58. Apparatus as claimed in any of claims 50 to 57 wherein the bridge member includes at least one inflatable member whereby the bridge member is transformable between contracted and expanded conditions by deflation and inflation of the inflatable member.

59. Apparatus as claimed in any of claims 50 to 58 for carrying out the method of any of claims 45 to 49.
60. A transfer vessel having mounted thereon apparatus as claimed in any of claims 50 to 55 or any of claims 57 or 58 when dependent on claim 54.
61. A transfer vessel as claimed in claim 60 comprising an inflatable boat, in particular an RIB.
62. Apparatus substantially as hereinbefore described with reference to any of Figures 11 to 20.